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Aspiration in Basque

JOSÉ IGNACIO HUALDE

University of Illinois at Urbana-Champaign

Abstract

The distribution of aspiration in Basque — with ‘aspiration’ referring to both the occurrence of [h] and of aspirated stops — shows some puzzling aspects. In some words, aspiration is ancient, in the sense that it must be assumed for the earliest reconstructable stage. In some other instances, however, it has arisen seemingly *ex nihilo*, as can be observed in borrowings from Latin and Romance, e.g. Latin/Romance *īra* > Basque *hira* ‘ire’, Romance *taula* > Basque *thaula* ‘board’. Most surprisingly, in some words aspiration has developed after a sonorant consonant, e.g. Romance *solatz* > Basque *solhas* ‘conversation’. Aspiration may also continue intervocalic /n/, e.g. Latin *anāte* > Basque *ahate* ‘duck’. Another unusual development is the phonologization of the contrast between aspirated and unaspirated voiceless stops triggered by a shift of the stress in some words without affecting the properties of consonants. Finally, an interdialectal alternation /k-/ ~ /g-/ ~ /h-/ ~ ∅ in demonstratives and related adverbs appears to have involved fortition, contrary to initial expectations. Here we describe the environments in which aspiration is found in Basque and discuss the most likely historical developments that could have given rise to the state of affairs that we find, paying particular attention to what would appear to be unusual or unnatural sound changes. We build on prior scholarship, but this paper also contains some new hypotheses, especially regarding the aspiration in words like *ahate* ‘duck’. We have also tried to contribute to the dating of the different processes and to the understanding of in their causes.

1 Introduction

Although most contemporary Basque dialects lack phonological aspiration altogether (either in stops or as /h/), a laryngeal fricative phoneme is well attested in the Basque varieties spoken on the northern side of the Pyrenees, in present-day France, from the first

texts, of the 16th–17th centuries, until the present.¹ The northeastern Zuberoan (or Souletin)² dialect possesses, in fact, not one, but two aspirated phonemes: oral /h/ and nasalized /ħ/ (Hualde 1993, Egurtzegi forthcoming). Aspiration is also found in medieval documentation (mostly place names) from other Basque-speaking regions,³ as well as in proper names contained in Basque-Aquitanian inscriptions from Roman times (see Gorrochategui 1984). It is safe to conclude that the ancestor of all present-day Basque dialects had a phoneme /h/, although not with the same distribution as in historically attested varieties. Aspiration appears to have been lost in certain positions (in particular, after the accented syllable) and generalized in other positions (in particular, on the onset of accented syllables).

In Northern dialects, from the first texts in the 16th century until the present, aspiration may be found word-initially, intervocally (including between a falling diphthong and vowel) and between a non-labial sonorant consonant and a vowel (Gavel 1920, 450–451, Michelena [1977] 2011, VI, 167). In addition, modern and contemporary ‘aspirating’ Basque varieties (as far back as the 16th century) possess a three-way phonemic contrast in the plosives: voiced /b d g/, voiceless unaspirated /p t k/ and voiceless aspirated /p^h t^h k^h/. (See Lafon [1958] 1999 on the phonological status of aspirated stops in modern Zuberoan Basque; for acoustic studies of the contrast between aspirated and unaspirated voiceless stops, see Gaminde et al. 2002, Mounole 2004).

In post-medieval Basque dialects, only one aspiration or aspirated stop may be found within a word and these segments are also generally

¹ In this paper, the term ‘aspiration’ is used in the sense that refers to both the laryngeal fricative /h/ and to voice onset delay in stops (or to either of these phenomena separately). At present, aspiration is a receding feature (Jauregi & Epelde 2013). In the coastal area of the French Basque Country, aspiration was already lost in the 19th century, although it is well documented in texts from the 17th century (Michelena [1977] 2011, VI, 168). Just south of the political border, in Irun and Hondarribia, /h/ must have still existed when /ʃ/ was backed to /χ/ in Gipuzkoan Basque, with the same development as in Spanish, towards the end of the 17th century. The evidence is provided by toponyms like *Jaizkibel* /xaiskibel/, transparently a compound of *haitz* ‘rock’ and *gibel* ‘backside’, showing confusion of the new back fricative with preexisting aspiration (as we find in some Spanish dialects).

² I use the following abbreviations for languages and dialects: Bq = Basque, Bizk = Bizkaian, Gasc = Gascon, Gip = Gipuzkoan, Lap = Lapurdian (Labourdin), Lat = Latin, Rom = Romance, Ron = Roncalese, Sp = Spanish, Zub = Zuberoan (Souletin). I use * to indicate a reconstructed form and ** to indicate an ungrammatical/impossible form.

³ In particular, in the 11th century text known as *Reja de San Millán*, which contains a large number of toponyms from the southwestern region of Araba or Alava. See Manterola (2015) for a recent study of the distribution of <h> in this and other early documentary sources.

restricted to one of the first two syllables in the word, with exceedingly few exceptions (Lafon [1958] 1999, 122, Michelena [1977] 2011, VI, 174, 177). These restrictions, reminiscent of Grassmann's Law in Sanskrit and Ancient Greek (Lafon 1948, 56-57, Michelena [1950] 2011, VII, McEachern 1999), are not apparent, however, in the documentary evidence from Roman times and the Middle Ages.

In some instances, aspiration appears to have developed as a regular evolution of intervocalic /n/, which is a typologically uncommon sound change (Michelena [1950] 2011, VII, Igartua 2015).

Here we will consider the diachronic reasons for the distribution of the laryngeal fricative and aspirated stops in modern dialects, building on prior scholarship. Since there is a certain amount of variation in the lexical distribution of aspiration in aspirating dialects (Gavel 1920, 451-452, Lafon 1948), for concreteness we will exemplify almost exclusively from one work, the book *Gero* 'later', published in 1643 by Pedro de Axular. The language of this book is known as Classical Lapurdian (or Labourdin) and represents the speech of the town of Sara, in the region of Lapurdi (Fr Labourd), in the 17th century. Although the first published book written in Basque, Bernard Etxepare's *Linguae Vasconum Primitiae* (written in a slightly more eastern variety) saw the light a century earlier, in 1545, we take our examples from *Gero* because it is a much longer work and there are no apparent differences between the two texts in the generalizations that they allow regarding the distribution of aspiration.⁴ We will start our description and analysis with the aspirated stops before considering the distribution and possible sources of the phoneme /h/.

2 Aspirated stops

In (1), I provide a nearly-complete list of words with aspirated stops in Axular's book, grouped by the position of the aspirated stop: (a) word-initially, (b) in the onset of the second syllable and (c) in the onset of a later syllable. The examples are in modernized spelling, which is employed in both available scholarly editions of this book, by Villasante (1974) and Urgell (2015), see also Villasante's (1973) dictionary of Axular's language. In this modernized spelling system, <ph>, <th> and <kh> are used for aspirated stops (In the original spelling used by Axular, /p^h/ is represented as <pp>, /t^h/ as <th>, and /k^h/ as <cc>. In a few words of foreign origin such as *Luthertasun* 'Lutheranism' the spelling with <th> may not reflect a fact of pronunciation).

⁴ Another important 16th century source in this respect is Joanes Leizarraga's (1571) translation of the Gospels and other work.

(1) Aspirated stops in Pedro de Axular's *Gero* [1643]

a. Word-initial

Monosyllabic: *khar* 'flame', *khe* 'smoke', *khen-* 'take away', *tho* 'you, male'

Borrowings: *phentsa-* (~ *pentsa*) 'think'; *thira-* 'pull', *thonba* 'tomb', *thaillu* 'type', *thema* 'theme', *thaula* 'board', *kheinu* 'sign', *khexa* 'complain'

Other: *khirats* 'stench'

b. Second syllable

/p^h/ *aipha-* 'mention', *aphain-* 'decorate', *aphetitu* 'appetite', *aphez* 'priest', *apho* 'toad', *aphodera* 'grab', *aphur* 'a bit', *ephai* 'judge', *ephe* 'period', *epher* 'partridge', *biphil-*, *lepho* 'neck', *Laphurdi* 'Lapurdi/Labour', *saphar* 'bush', *sophortu* 'endurance', *zaphore* 'taste'

/t^h/ *aithor-* 'confess', *arthean* 'between', *arthez* 'with art', *artho* 'maize', *athal* 'section', *athaka* 'gateway', *athea* 'door', *athera* 'take out', *atheri* 'clear up (weather)', *athorra* 'shirt', *aurthiki* 'throw', *bathaiatu* 'baptize', *baithan* 'in, at', *betheriatsu* 'bleary', *berthute* 'virtue', *betha-* 'fill', *bethakor* 'fruitful', *bethe* 'full', *bethi* 'always', *bithore* 'deft', *bortha* 'door', *bothere* 'power', *buthoitu* 'button up', *buthun* 'letter', *deithora* 'lament', *dithi* 'teat', *ethen-* 'break', *ethorri* (*dathor-*, *bethor*) 'come', *gathe* 'chain', *gathibu* 'captive', *gertha-* 'happen', *gerthu* 'certain', *girthain* 'handle', *goithatu* 'wise', *gorthe* 'court', *ithaizura* 'leak', *itho* 'drown', *ithurburu* 'spring', *ithurri* 'spring', *lothu* 'tie', *Luthertasun* 'Lutheranism', *mathela* 'cheek', *motel* 'slow', *mutha-* 'change', *muthil* 'boy', *muthiri* 'shameless', *muthur-* 'get angry', *notha* 'stain', *orthuz* 'shoeless', *otharre* 'basket', *othe* 'perhaps', *othoi* 'prayer', *othoitz-* 'pray', *othuruntza* 'meal', *sarthu* 'enter', *sortha* 'load', *sorthu* 'arise', *thaillu* 'type', *urthe* 'year', *urtha-* 'melt', *eztheus* 'nothing', *zathi* 'piece', *zortha* 'luck, fate'

/k^h/ *akhaba* 'finish', *akhometa-* 'attack', *akhorda-* 'pay attention', *akhordu* 'judgement', *akhort* 'agreement', *alkhate* 'mayor', *bakhan* 'rarely', *bakhar* 'alone', *bakhotx* 'only, sole', *bakhun* 'simple', *barkha-* 'forgive', *bekhatore* 'sinner', *bekhatu* 'sin', *bekaitz* 'envy', *bekhoki* 'forehead', *bikhor* 'grain', *bulkha-* 'push', *ekhai* 'work', *ekhar-* (*dakharke*) 'bring', *ekhin* 'start', *elkhar* 'together', *elkhor-* 'dry up', *gakho* 'key', *golkho* 'bosom', *ikhara* 'tremor, fear', *ikhas-* 'learn', *ikhatz* 'coal', *ikhorzirin* 'corn, callus', *ikhus-* 'see' (but *dakusa* 's/he sees'), *ilkhi* 'get out', *khaillu-* 'harden', *lakhet* 'pleasure', *lakhu* 'lake', *lekhu* 'place', *makhur* 'twisted', *malkhar* 'slope', *malkhor* 'slope', *mokho* 'beak', *nekha-* 'get tired', *nekhazale* 'farmer', *okha* 'vomit', *okher* 'twisted', *or(t)khai* '(shoe) mold', *sukhalde* 'kitchen', *sukhar* 'fever', *sukhoi* 'fiery', *sukhai* 'fuel', *ukha-* 'deny', *ukhaldi* 'blow, beat', *ukhi* 'touch', *ukho* 'succumb', *ukhondo* 'elbow', *urkha* 'gallows', *zokho* 'corner'

c. Third or fourth syllable

etxathe 'house-door', *erakharri* 'attract', *emakhoi* 'womanizer', *hillabethe* 'month'

From the list in (1), it is apparent that the restriction in the distribution of aspirated stops is even stronger than their placement in a two-syllable window at the beginning of the word. In fact, aspirated stops are almost always found on the onset of the second syllable of the word, if the word has more than one syllable.

Leaving aside monosyllables, almost all words in (1a), with a word-initial aspirated stops are borrowings (*phensa* ‘think’, *thira* ‘pull’, *thomba* ‘tomb’, *thaula* ‘board’, *kheĩñu*, *kheĩñadura* ‘sign, grimace’, *khexa* ‘complain’). The only native word in this group, *khirats* ‘stench’, may be a compound of *hats* ‘breath’. As for the words in (1c), with an aspirated consonant beyond the second syllable, they are all morphologically complex. Some are transparent compounds *etx-athe* ‘house door’, from *etxe* ‘house + *athe* ‘door’; *hilla-bethe* ‘(full) month’, from *hille* ‘month’ + *bethe* ‘full’. The word *ema-khoi* ‘womanizer’ has a word-level suffix, which is sometimes used as an independent word, *khoi* ‘fond of’. Finally, *erakharri* ‘attract’ is the causative form of *ekharri* ‘bring’, and may show an analogical effect in the retention of *kh*.

These restrictions on the distribution of aspirated stops obviously suggest an effect of word-stress; that is, it seems sensible to assume a situation where voiceless stops were aspirated in stressed syllables and unaspirated elsewhere (Michelena [1977] 2011, VI, 178). As argued by Michelena, this hypothesis is strengthened by the presence of alternations between aspirated and unaspirated stops with the same morpheme, as in, e.g. *sar-thu* ‘go/put in’ vs *ager-tu* ‘appear’, both bearing the same perfective participle suffix. Michelena [1977] 2011, VI, 332) also points out the existence of alternations such as Zub *jókũ* ‘game’, *jokhátũ* ‘played’; *mérke* ‘cheap’, *merkhátũ* ‘market’ in support of the hypothesis.⁵

Examples like *har-tu* ‘take’ (not **harthu*), show the operation of a restriction against more than one aspiration or aspirated stop per word, reminiscent of Grassman’s Law in Sanskrit and Greek, leaving aside a few compounds like *hillabethe* ‘month’ (Lafon 1948, Michelena [1950] 2011, VII).

We may conclude, then, that at some historical point, before Axular’s book and other 17th and 16th century texts, in these Basque dialects the stress-accent regularly fell on the second syllable (and on

⁵ Zub *merkhatũ* ‘market’ forms a minimal pair with *merkatũ*, perfective participle of *merka* ‘become cheap’. Michelena suggests that words like *joku* ‘game’ and *mérke*, which are borrowings from Latin, may have preserved the original accentuation, which would account for the lack of aspiration of the medial voiceless stop. The same alternation is found, nevertheless, in *maite* ‘love (N)’ vs *maitha(tũ)* ‘love (V)’ (see Larrasquet 1939, s.v.).

the only syllable of monosyllabic words) and that at that point in time voiceless stops in the onset of stressed syllables were allophonically aspirated, as they are, for instance, in present-day English. It also seems sensible to conclude that by the 16th century this was no longer the case. If aspiration of stops had still been purely allophonic, writers like Axular (and the older Etxepare and Leizarraga) would not have felt compelled to indicate which stops are aspirated in their spelling system. In Axular's text we find, for instance, *zorthē* 'luck, fortune', *sortha* 'load' vs *suerte* 'sort, type'.

The only modern aspirating dialect that possesses contrastive stress or accent is Zuberoan (or Souletin), spoken in the northeasternmost Basque-speaking area. In this dialect, the penultimate syllable is usually stressed, not the second one from the left; so that there is no necessary connection between stress and aspiration, cf., e.g. *ákher* 'he-goat', *akhérra* 'the he-goat', *lékhü* 'place', *lekhía* 'the place', *míthil* 'servant', *mithíla* 'the servant', *mithilé* 'the servants', with an aspirated stop sometimes before and sometimes after the stress (see Michelena [1977] 2011, VI, 331, and Mounole 2004 for a spectrographic study). As reflected in the work of P. D'Urthe, 17th coastal Lapurdian varieties had also shifted the stress away from the second syllable and towards the end of the stem (Michelena [1977] 2011, 446–448, Sagarzazu 1996). The aspiration of stops, which was an automatic allophonic effect of stress, became phonologized when the stress shifted to a different syllable in the word.

The contrast between aspirated and unaspirated voiceless stops appears to be an innovation that may have taken place only in dialects north of the Pyrenees and in relatively recent times. In the medieval documentation, there is no indication of aspirated stops (Michelena [1954] 2011, V, 208). As for the Aquitanian inscriptions, <th> is found in the names *Baisothar* and *Hontharris* (Michelena [1977] 2011, VI, 209), but we cannot know what sound is represented by these letters in these two names.⁶

The aspiration (longer VOT) of voiceless stops in the onset of a stressed syllable is not especially remarkable. This is for instance what we find in English (cf. the two /t/'s in Eng. *potato*). The shift of the stress without affecting this consonantal property, as proposed by Michelena, on the other hand, is more unusual. In principle, the expectation would be for the aspiration to be lost in stops that were no longer immediately placed before a stressed vowel after the stress shifted; e.g. **akhér* > **áker*, with loss of the aspiration (instead of

⁶ It may have been an aspirated /t^h/, but it could also have been, for instance, a dental fricative or a sequence of stop + /h/ as in English *pothead*, *hothead*, *upheaval*.

ákher). A possible explanation is that the analogical influence of inflected forms where stress and aspiration still coincided after the change in the accentuation rule (e.g. the inflected singular form *akhérra*) acted to preserve aspirated stops in all forms of inflectional paradigms, this resulting in a loosening of the connection between stress and aspiration and the phonologization of the latter as a phonologically distinctive feature on stops.

To summarize this section, phonologically aspirated stops are an innovation in Eastern Basque dialects, resulting from two processes. First, stops acquired longer VOT when in the onset of stressed syllables (i.e. generally in the second syllable of the word, but in the initial syllable of monosyllabic words and some loanwords), as in (2). I employ a shafted arrow (→) in synchronic derivations.

(2) Allophonic aspiration of voiceless stops

(a) Stress: [+2] (but [+1] in lexically marked items)

(b) /ptk/ → [p^h t^h k^h] before a stressed vowel

e.g. /sar-tu/	→ sar-tú	→ [sart ^h ú]	‘enter’
/ager-tu/	→ agértu	→ [agértu]	‘appear’
/har-tu/	→ hartú	→ hart ^h ú	→ [hartú] ‘take’ (by dissimilation)
/akerr/	→ akérr	→ [ak ^h érr]	‘he-goat’
/akerr-a/	→ akérr-a	→ [ak ^h érra]	‘the he-goat’
/komun/	→ [komún]		‘common’
/táula/	→ [t ^h áwla]		‘board’ (exception to the [+2] stress rule)

The rule placing the stress on the second syllable of the word is by itself an innovation (Hualde 2003, 2006, 2012, 2017a) that does not go back to Old Common Basque — which is the name given to the most recent Proto-Basque stage (see Michelena 1981, Lakarra 2017).

At a later point, but before the 16th century, the stress-assignment rule changed in the Eastern area. In particular, the stress algorithm changed from counting from the left to counting from the right. As claimed by Michelena, the very high frequency of inflected trisyllabic words (e.g. *gizóna* ‘the man’, *mendía* ‘the mountain’) created ambiguity in the directionality of the rule of stress assignment and facilitated this change. Again, what is surprising is that aspiration on stops was retained even when, after the change in stress, they were now found in an unstressed vowel, leading to the phonologization of the contrasts between aspirated /p^h t^h k^h/ and unaspirated /p t k/, as their distribution became unpredictable, e.g. *sárthu* vs *agértu*, as shown in (3).

(3) Phonologization of aspiration in stops

Stage I: stress on second syllable, aspiration predictable from stress:

/sartu/ [sarthú], /agertu/ [agértu], /akerr/ [ak^hérr],
/táula/ [tháwla] (exception to general stress rule)

Stage II: stress on penultimate syllable, aspiration unpredictable:

/sarthu/ [sárth^hu], /agertu/ [agértu], /akerr/ [ák^her], /taula/ [tháwla]

Analogical effects between uninflected and inflected forms, as in *ákher*, *akhérra* broke the link between aspiration and stress, leading to the phonologization of aspiration. At the same time, a generalization or constraint arose against aspirated stops appearing beyond the second syllable of the word.

3 Post-sonorant aspiration

In Axular's text, like in texts in other aspirating dialects, the consonants /n p l r/ <n, ñ, l, r> are followed by /h/ when they appear before the second vowel in the word with very high frequency, as in (4). In fact, most of the time these sonorant consonants are followed by /h/ in this position in the word. This is also the only position where these sequences are found. It should be noted that these are all heterosyllabic clusters, e.g. *alha* /al.ha/ 'graze' (Lafon 1948, 56, [1958] 1999, 121), a fact that precludes their appearance in word-initial position; e.g. *lan* 'work' cannot be **lhan*.

Although I have not found any examples in Axular's book, /h/ may also occur after the trill /r/ <rr> in aspirating dialects, e.g. *urrhe* 'gold'. On the other hand, there is no aspiration after /m/ in any dialect. For instance, words like *amets* 'dream', *amore* 'love' (< Lat), do not have a variant **amhets*, **amhore* anywhere. That is, the context of postconsonantal aspiration can be defined as the onset of the second syllable of the word following a non-labial nasal or liquid.

(4) Post-sonorant aspiration in Pedro de Axular's *Gero* [1643]

/l.h/ *alha* 'graze', *alhargun* 'widow', *alhor* 'field', *belhar* 'grass', *belhaun* 'knee', *bilha* 'gather', *bilhaka-* 'destroy', *bilhuka-* 'twist', *bulhar* 'breasts', *elhe* 'story', *elhorri* 'thornbush', *elhur* 'snow', *ilhaun* 'ashes', *ilhun* 'dark', *salha-* 'reveal', *salho* 'proposition', *solhas* 'conversation', *zalhui* 'nimble', *zilhar* 'silver', *zilhegi* 'allowed'

/n.h/ *anhitz* 'many', *enharda-* 'dislocate', *inhar* 'spark', *lanhabes* 'tool', *lanho* 'fog', *onhasun* 'wealth', *onheritz-* 'love', *onhest* 'honest', *onhets-* 'love', *unha-* 'get tired', *unhide* 'wet nurse', *senhar* 'husband', *sinhets-* 'believe', *xinhaurri* 'ant'

/j.h/ *oiñhatze* 'pain'

/r.h/ *burhaso* 'parent', *burho* 'blasphemy', *erhaile* 'killer', *erhaztun* 'ring', *erhi* 'finger', *erho* 'crazy', *garhaite* 'top', *orhoit* 'remember', *zorhi* 'fate'

Logically, there are two ways to explain the restriction of postconsonantal /h/ to the onset of the second syllable. One possibility is that /h/ developed in this position as an effect of stress, as we have postulated for the aspirated stops (following Michelena). The other logical possibility is that, at an earlier time, these sequences had a more unrestricted distribution, but later the aspiration was lost when not on the onset of the stressed syllable. In principle, the latter hypothesis seems preferable on phonetic grounds. Whereas the aspiration of voiceless stops in the onset of stressed syllables is not a surprising development, I am not aware of any phonetic mechanism that could result in the development of /h/ after sonorants as an effect of prosodic prominence. Furthermore, examples such as *Elhorriaga*, *Galharreta*, *Mendiolha* are present in the southwestern medieval documentation (Manterola 2015, 174, 177). These clusters and the phonemically aspirated voiceless stops thus have very different chronologies.

Notice, however, that a few of the words in (4) are borrowings from Romance, showing that the aspiration in C+h sequences cannot be etymological in all cases. Romance borrowings in (4) include *onhest* ‘honest’ (< /onest/),⁷ and *solhas* ‘conversation’ (< /solats/). (The word *zilhar* ‘silver’ may also be a borrowing from an Indo-European source, but, if so, it would be a much older borrowing).

The list in (4) also contains compounds and derived words, such as *on-heritz*- ‘love’ (from *on* ‘good’ + *eritz-i* ‘consider’), *lan-habes* ‘tool’, *on-hasun* ‘wealth’. In these words, the /h/ coincides with a morphemic boundary (Michelena ([1977, 201] 2011, VI, 173). In these compounds, the aspiration may continue an earlier glottal stop inserted at the morpheme boundary. A glottal stop in this morphological position has been postulated in order to account also for additional segmental phenomena in compounds, e.g. *idi* ‘ox’ + *aurrean* ‘in front of’ > **idi?aurrean* > *itaurrean* ‘leading oxen’, *begi-gaitz* ‘evil eye’ > *bekaitz* ‘envy’ (Hualde 2006, Oñederra 2013). In Hualde (2006) a glottal stop is also invoked as triggering accentogenesis in morphologically-complex words in Western dialects.

Lakarra (2015), instead, proposes that in *onheritz* and other compounds such as *onherran* ‘bless’ (*erran* ‘speak’) there was metathesis of the aspiration from the word-initial position. This is certainly a possibility, since the word *on* ‘good’ does indeed have an Eastern (Low Navarrese and Zuberoan) variant *hon* ~ *hun*. Nevertheless, there are other compounds such as *lanhabes* ‘tool’, *deihadar* ‘call, clamor’ and *gauherdi* ‘midnight’ (< *gau* ‘night’ + *erdi* ‘half’) to which such an explanation could not extend (see Michelena [1977] 2011, VI, 174 and

⁷ Latin /h/ <h> became silent before the classical period (Allen 1978: 43-45).

Section 6 below). Notice that if we assume **honʔerran* > **honherran*, dissimilation would be expected (cf. *ilherri* ‘cemetery’ from *hil* ‘dead’ and *herri* ‘town’, Michelena [1977] 2011, VI, 174).

The distribution of sonorant+/h/ clusters may thus have resulted from three different changes:

- (a) **ʔ/* > */h/* in compounds, e.g. *on-eritz* ‘good-consider’ > *onʔeritz* > *onheritz* ‘love’;
- (b) loss of older aspirations beyond the second syllable of the word; and
- (c) aspiration *ex nihilo*, *∅* > */h/*, immediately before a stressed vowel and after a [+cons, +son, –lab], e.g. *onest* > *onhest* ‘honest’.

The third of these three changes does not appear to have a phonetic justification and may have been motivated by analogy with the distribution of aspirated stops and postvocalic aspiration. That is, the generalization that gave rise to the development of aspiration in this position may have been something like ‘stressed syllables should have an aspirated onset.’ Notice that the compounds in (a) may in fact fall under the same generalization, so that an independent explanation is not required to the extent that the aspiration is found between the first two syllables of the compound.

The reason why aspiration was generalized after nonlabial sonorants in this position but did not develop after */m/* may have been that there were no preexisting */mh/* clusters. In this respect, it should be noted that Ancient Basque (i.e. the oldest reconstructable stage of the Basque language)⁸ appears to have lacked a bilabial nasal (Michelena [1977] 2011, Trask 1996, 126).

4 Word-initial /h/

Leaving aside the postconsonantal context just considered, the laryngeal fricative */h/* may appear word initially and also postvocally in the onset of the second syllable, but not further to the right. This is very similar to the distribution that we find for the aspirated stops */p^h t^h k^h/*, and also suggests an effect of stress. Nevertheless, whereas aspirated stops are found almost exclusively in the second syllable if the word has more than one syllable, the fricative */h/* is common in the onset of both the first and the second syllables.

⁸ Trask (1996) refers to this reconstructed stage as ‘Pre-Basque’, other authors have used the label ‘Proto-Basque’ with this intended meaning. Notice that this is an older stage than the latest common ancestor of all present-day Basque varieties, which is usually called ‘Old Common Basque’. See appendix.

This suggests that at least some instances of word-initial aspiration have not developed as a secondary effect of stress.

In agreement with Michelena ([1977] 2011, VI, 178), we have concluded in section 1 that, in all likelihood, the phonologically contrastive aspiration of stops is a late-medieval or post-medieval innovation in the dialects north of the Pyrenees. The laryngeal fricative /h/, on the other hand, has a longer pedigree and appears to have once been general in the language, as it is found in medieval listings of toponyms from the southwestern region of Araba (Sp Alava) and in inscriptions from Roman times, such as VMME SAHAR (in an inscription found in Lerga, Navarre), interpretable as modern Basque *ume* ‘child’ and *zahar* ‘old’. In some instances, however, it is clear that aspiration has developed more recently.

In this section, we will consider word-initial /h/. In (5), I provide a list of words with word-initial /h/ in Axular’s book *Gero*.⁹

(5) Word-initial aspiration in Pedro de Axular’s *Gero* [1643]

- (a) Borrowings: *haizkora* ‘axe’ < Lat *asceola*; *haltza* ‘alder’, cf Sp *aliso*; *harea* ‘sand’ < Lat *arēna*; *harma* ‘weapon’ < Lat/Rom *arma*; *harmora* ‘wall’; *hautatu* ‘choose’ < Lat *optāre*; *harrapatu* ‘grab’ < Gasc *arrapar*; *hira* ‘ire’; *hondar* ‘bottom, dregs’ < cf Sp *hondo*; *horma* ‘ice’ < Sp or Gasc < Lat *forma*; *hornitu* ‘furnish’ < Gasc *hornir*; *husu* ‘often, usually’
- (b) Demonstratives and related forms: *hala* ‘thus’, *hain* ‘so much’, *han* ‘there’, *hanbat* ‘so much’, *haren* ‘his/her’, *haur* ‘this’, etc.
- (c) Other: *habaila* ‘slingshot’, *habarrots* ‘noise’, *habe* ‘column’, *habuin* ‘foam’, *hagitz* ‘strongly’, *haiotz* ‘scythe’, *haize* ‘wind’, *hamar* ‘ten’, *handi* ‘big’, *har* ‘worm’, *haragi* ‘meat’, *harotz* ‘smith’, *hartu* ‘take’, *hartz* ‘bear’, *harri* ‘stone’, *haserre* ‘angry’, *hasi* ‘begin’, *hasnaur* ‘ruminate’, *handandu* ‘get away’, *hasuiñ* ‘nettle’, *hats* ‘breath’, *hatz* ‘itch’, *haur* ‘child’, *hauts* ‘dust’, *hauzi* ‘legal suit’, *hauzo* ‘neighbor’, *hazi* ‘grow’, *hazkatu* ‘touch’, *hebain* ‘cripple’, *hegal* ‘wing’, *hegigoa* ‘hate’, *heldu* ‘arrive’, *help*, *herabe* ‘disgust’, *herdoildu* ‘rust’, *heren* ‘third’, *herio* ‘death’, *hertsi* ‘close’, *herra* ‘hatred’, *herrauts* ‘dust’, *herri* ‘land, town’, *heze* ‘humid’, *hezi* ‘tame’, *hezur* ‘bone’, *hi* ‘thou’, *hidoiztatu* ‘get dirty’, *higatu* ‘spend’, *higitu* ‘move’, *higuin* ‘repugnance’, *hildo* ‘rut’, *hil* ‘dead’, *hilabete* ‘month’, *hiri* ‘city’, *hirur* ‘three’, *hirritu* ‘show’, *hisikatu* ‘insist’, *histu* ‘satisfy’, *hitz* ‘word’, *hobe* ‘better’, *hoben* ‘fault’, *hobi* ‘grave’, *hogoi* ‘twenty’, *hordi* ‘drunk’, *hortz* ‘tooth’, *hosin* ‘hole’, *hosto* ‘leaf’, *hots* ‘noise’, *hotz* ‘cold’, *hozitu* ‘germinate’, *hodigoa* ‘enmity’, *hurbil* ‘near’, *hurtu* ‘melt’, *huts* ‘fault, empty’

⁹ For word variants, proposed etymologies, etc., see the Basque Academy’s online dictionary (Euskaltzaindia 2017). This dictionary was started by L. Michelena and was continued after his death by I. Sarasola and a team of lexicographers employed by the Basque Academy. A historical and etymological dictionary of Basque by J. A. Lakarra, J. Manterola and I. Segurola, also under the auspices of the Academy, is forthcoming.

In (5) demonstratives and related forms, as well as borrowings, have been separated from other words with initial aspiration. The reason for this is that in both of these groups of words we can make use of additional evidence regarding the origin of the aspiration.

Starting with the loanwords, it should be kept in mind that both Old Spanish and Gascon have phonemic aspiration, mostly because of a sound change whereby Latin /f/ became /h/ (aspiration was later lost in most Spanish dialects). Thus, in some of the borrowings in (5a), including *hornitu* ‘furnish’, from Gascon *hornir* (cf Fr *fournir*), *hondar* ‘bottom, dregs’, possibly from Spanish *hondo* ‘bottom’ (< Lat *fundu-*), and *horma* ‘ice’, from either Gascon or Spanish (< Lat *forma*), the aspiration can be attributed to the source Romance language.

In most of the words in (5a), however, the aspiration lacks etymological justification, since these words are vowel-initial in Romance (see Michelena [1977] 2011, VI, 172). Although in *harea* from *arēna* the initial aspiration could perhaps be related to the weakening of intervocalic /n/ (see below), as proposed by Lakarra (2009a, 2009b, 2017), this explanation would not extend to other items in this list like *harma* ‘weapon’, *hira* ‘ire’, *harrapatu* ‘grab’ (< Gasc *arrapar*), *husu* ‘often, usually’, etc. We must thus conclude that some words have acquired non-etymological aspiration, as we concluded in the previous section regarding Romance borrowings with postconsonantal aspiration. The specific context for this prothesis of /h/ is, nevertheless, unclear, since it lacks systematicity. It appears to have been a sporadic process.¹⁰

In the native vocabulary, of course, we do not have the same evidence as in loanwords to determine which words may have developed non-etymological aspiration. In any case, from the examination of the distribution of initial /h/ in loanwords, we may safely assume that at least some of the native words in (5c) may have a non-etymological /h/, which does not continue any other older consonant.

Trask (1997, 158–159) holds the view that aspiration in Basque, with very few potential exceptions, was originally a suprasegmental feature possibly related to accentual prominence. Gorrochategui & Lakarra (2001), on the other hand, have argued that this position is

¹⁰ It has been suggested that in some cases an initial /h/ may be due to contamination, e.g. *harroka* ‘rock’ (< Gasc *arròca*) may owe its aspiration to *harri* ‘stone’ (Gavel 1920, 190, Michelena [1977] 2011, VI, 172, but cf. also Gasc *garròc*). Lakarra (2015) discusses several such possible cases.

excessive and that /h/ was already a phoneme in Ancient Basque (see also Lakarra 2009a, 2009b, 2015).

In the native lexicon, words starting with voiceless stops are exceedingly rare. To explain their absence, Martinet (1950) suggested that earlier voiceless stops in this position were always aspirated and became /h/ (which later may have been lost in some words). Under this hypothesis, at least some instances of word-initial /h/ may continue an earlier voiceless stop.¹¹

The presence of /h/ is in fact abundant in both the southwestern medieval documentation and in the Basque-Aquitainian inscriptions, as mentioned above. In Lakarra's view some instances of word-initial /h/ may have resulted from metathesis, where the /h/ developed from other segments later in the word, as in the example *harea* 'sand' just mentioned. Among the words in (5) above, *habarrots* 'noise', which appears to be a compound of *abar* 'branch' and *hots* 'sound, noise', may also illustrate metathesis of the aspiration. There are thus different opinions regarding how frequent non-etymological word-initial /h/ may be. There can be little doubt, however, that some borrowings with initial aspiration lack a segmental source for this phoneme. What is true of borrowings may also be true of at least some of the native lexicon. On the other hand, Lakarra (2015) remarks that initial /h/ may have been lost in some other words. This would be the case with *urkha* 'fork, gallows' (< Gasc *horca* /hurka/, cf. Sp *horca*), perhaps because of dissimilation, and with *eme* 'female', if it derives from Gasc *hemna* 'woman' (< Lat *femina*). In the native lexicon, cf. *alabaina* 'however' < *hala* 'thus' + *baina* 'but', etc.

Regarding demonstratives now, these forms are listed separately because in some Navarrese dialects they start with a velar stop, usually voiced /g-/ , but voiceless /k-/ in the Roncalese dialect. Thus, Roncalese has *kaur* 'this' for common *haur*, *kori* 'that' for *hori*, *keben* 'here' for *hemen*, *kala* 'thus' for *hala*, etc. In principle, it would seem most reasonable to assume that, in this case, /k/ is the oldest realization, and the laryngeal fricative has resulted from the lenition of the velar stop; that is, /k-/ > /g-/ > /h-/ (see, e.g. Martinet 1950, 229, Michelena [1977] 2011, VI, 203). However, several authors have pointed out that there are reasons for concluding that the stop-initial demonstratives and adverbs are actually more recent (Camino 1997, 407–415,

¹¹ Martinet (1950) does not offer any specific examples. Lakarra (in press) suggests an etymological relationship between pairs of words such as (*h*)*ur* 'water' and *ithurri* 'spring, source', *has-i* 'start' and *i-khas-i* 'learn' and *har-tu* 'take' and *e-kharr-i* 'bring', where the first member of each pair would have undergone the sound change proposed by Martinet.

Manterola 2015, 38–39, Lakarra 2011, 209–210). For one thing, velar-initial demonstratives are not documented in Navarrese until very recent times (Reguero 2017, 570). In addition, those Navarrese varieties that have velar-initial demonstratives also display vowel-initial demonstratives in anaphoric function, e.g. *mendi gori* ‘that mountain’, but *ori* ‘that one’ (see, e.g. Manterola 2015, Reguero 2017).

In Hualde (2017a), I proposed that, given the fact that intervocalic /h/ in Basque is usually voiced and /g/ is realized as a voiced fricative or approximant in this environment, a velar pronunciation may have resulted from a change [h] > [ɣ] in intervocalic position, e.g. *mendi[h]ori* > *mendi[ɣ]ori* ‘that mountain’. This explanation would also extend to other instances of cross-dialectal alternation between /h/ and /g/ in intervocalic position, as in *zahar* ~ *zagar* ‘old’, *beharri* ~ *begarri* ‘ear’, *mahats* ~ *magats*. In these words, /-g-/ [ɣ] is found in some Navarrese varieties (see Michelena [1967] 2011, VII, 662).

Camino (2013) has proposed a somewhat different explanation for velar-initial demonstratives. In his view, this consonant arose after the phoneme /h/ had already been lost in Navarrese Basque. A velar approximant [ɣ] would have originally arisen as a hiatus-breaking transitional consonant in forms like /oek/ ‘those’; that is, [oek] > *[oɣek]. This epenthesis process would then have been followed by metathesis, e.g. *[mendioɣek] > [mendiɣoek] ‘those mountains’. Finally, there would have been analogical extension to other demonstratives and place and manner adverbs. Camino finds support for this hypothesis in the form <ohec> used by a 17th century Navarrese author. Be this as it may, the conclusion that seems inescapable is that the available historical evidence does not support a change /k-/ > /g-/ > /h-/ in the demonstratives, but, rather, a later origin for /g-/ or /k-/ in these forms, contrary to a priori expectations regarding sound change.

5 Intervocalic /h/ in the context of earlier /-n-/

In this and following sections, we will consider the distribution of intervocalic /h/. With very few exceptions, intervocalic aspiration is restricted to the onset of the second syllable, just like postsonorant aspiration and aspirated stops. Aspiration in this position may have a number of different origins.

A sound change that Basque shares with Gascon is the weakening of intervocalic /n/. In Gascon, this weakening has resulted in the deletion of the segment, as in Lat *farīna* > Gasc *haria* ‘flour’, Lat *gallīna* > Gasc *garia* ‘hen’, Lat *lūna* > Gas *lua* [lyo] ‘moon’, etc. Chambon & Greub (2002, 407) propose a diachronic development whereby the ultimate deletion

of intervocalic /n/ in Gascon resulted after its velarization, as in (simplifying somewhat the evolution they propose), e.g. [ona] > [õna] > [õŋa] > [õa] (> [oa]). The weakening of intervocalic /n/ also took place in other Romance languages. In an area of Northern Italy, in particular, we find a velar nasal, e.g. Lat *arēna* > Genoese [ɛ:ŋa] ‘sand’ (Loporcaro 2009, 93), which Chambon & Greub postulate for a stage in the evolution of this segment in Gascon.

In Basque, on the other hand, we find two different developments, depending on the position of the nasal in the word. If the intervocalic /n/ was originally found in the onset of the third syllable or farther to the right, the final result is zero, as in Gascon. Nasalization of vowels in the context of a historical /-n-/ is preserved in Zuberoan and there is also explicit evidence for nasal vowels in this context in other dialects, including the Western or Bizkaian dialect, a few centuries ago, e.g. **ardano* ‘wine’ > Old Bizkaian *ardão* > Bizk *ardao*; Gip *ardo*; Zub *ardũ*, Lap *arno* (in compositional forms *ardan-* in all dialects, cf *ardantza* ‘vineyard’). When the deletion of intervocalic /n/ gave rise to a word-final nasalized diphthong the reinterpretation of the nasal feature has dialectally resulted in word-final /n/ in a relatively large number of words, e.g. **arrani* > **arrãi* > *arrai* ~ *arrain* ‘fish’; Lat *granu* > **garãu* > *garau* ~ *garaun* ‘grain’.

If, on the other hand, the /n/ was in the onset of the second syllable, we find aspiration in its place, as in Lat *anāte* > *ahate* ‘duck’, Lat *honōre* > *ohore* ‘honor’ (Michelena [1950] 2011, VII, Igartua 2015, Hualde 2015, Egurtzegi 2015, 2017). In Zuberoan Basque, this aspiration is nasalized, which triggers the nasalization of surrounding vowels. This dialect has a contrast between /h̃/ from the weakening of intervocalic /n/ and /h/ from other sources (between vowels both oral and nasal laryngeal fricatives are usually phonetically voiced).¹² We may safely assume that at some point this was also the case in other dialects, and that present-day aspirating dialects other than Zuberoan have lost the contrast between /h/ and /h̃/ that must once have existed in all varieties of the language. Examples of intervocalic /h/ of nasal origin from the book *Gero* are given in (6).

¹² Traditionally (including in Michelena’s writings and some later work by other authors), the contrast between forms like [ẽhe] and [ẽh̃ẽ] in Zuberoan was attributed to the vowels being either oral or nasal. See Hualde 1993 for arguments in favor of the phonemization that is adopted here.

(6) Intervocalic aspiration from /n/ in Pedro de Axular's *Gero* [1643]

- (a) Borrowings: *ohore* 'honor'; *mehatxatu* 'threaten' < Gasc *menaçar*, *miaçar*; *dohain* 'gift' < Lat *donum*, *dohatsu* 'blessed'
- (b) Native words: *ahalke* 'shy' (cf. Zub *añalke*), *ahantz-i* 'forget' (cf. Zub *añatz-i*), *ahakar* 'fight' (cf. Ron *ankar*, *ãkar*), *iharros-i* 'shake' (cf. other dialectal variants: *inarrosi*, *inharrosi*); *ihardetsi* 'answer' (cf. Zub *in(h)ardetsi*, Ron *ñardetsi*), *ihar* 'spark, dry' (cf. *iñar*), *ihizi* 'hunt' (cf. Zub *eñizi*), *ihes* 'flee' (cf. Bizk *iñes*), *lahar* 'thorn bush' (cf. Zub *nañar*, Bizk *naar*), *mihi* 'tongue' (cf. Zub *miñi*, Bizk *min*), *mahats* 'grape' (cf. Zub *mañats*), *zuhur* (cf. Zub *zũhũr* 'wise'), *mahai* 'table' (cf. Zub *mañáin*)
- (c) Indefinites: *nehor* 'anybody' < **enor*
(cf. *nor* 'who', Central/Western *inor* 'anyone')

One possibility is that a stage in the weakening of intervocalic /n/ in Basque, regardless of the position of the consonant in the word, was as in /ana/ > [ãñã] and that later the aspiration was lost when not immediately preceding the second vowel. That is, we would have a development as in (7), where the final change, denasalization, is found in dialects other than Zuberoan.

(7) Weakening of intervocalic /n/ in Basque: Hypothesis A

- I. Weakening of alveolar constriction: /ano/ > /año/ [ãñõ] in all positions
- II. Loss of aspiration in unstressed positions: /año/ [ãñõ] > /ão/
- III. Denasalization: /año/ > aho/; /ão/ > /ao/

Under this view, the aspiration that we find in some loanwords like *harea* 'sand' < Lat *arēna* and *lehoe* 'lion' < Lat *leōnem* could have resulted from sporadic metathesis, as argued in Lakarra (2009, 2015):¹³

¹³ The name of the Basque language, *euskara*, has initial aspiration in Low Navarrese (including in the work of the first author to publish in Basque, B. Etxepare, who writes *heuscara*). A form *enusquera*, perhaps interpretable as [ẽuskera], is found in a 16th century Spanish text by a Bizkaian historian (Irigoyen 1977, 1990). As Irigoyen and Lakarra (2015) argue, the word-initial aspiration in Low Navarrese would have resulted from the metathesis of intervocalic /h̃/ (with eventual denasalization): /enuskara/ > /eñuskara/ > /heuskara/. For Irigoyen (1990) this metathesis was a consequence of the reduction of the vowel sequence to a diphthong: /eñuskara/ > /héuskara/. For Lakarra, instead, the metathesis of the aspiration would have been a more general phenomenon.

arena > *areña* > **areha* > *harea*; *leone* > **leoñe* > **leohe* > *lehoe*.¹⁴ Michelena ([1950], VII: 11) also contemplates the possibility of metathesis of the aspiration in some words, e.g. **enazur* > *hezur* ‘bone’ (cf. Bizk *azur*, Ron *enzur*). In favor of the hypothesis of sporadic metathesis of /h/, we may notice that there are clear examples like *lohakartu* ‘fall asleep’, in Axular, from *loak* ‘sleep, Erg sg’ + *hartu* ‘take’; i.e. *loak-hartu* > *lohakartu*.

On the other hand, the hypothetical evolution in (7) has the drawback that it assumes a change /-n-/ > /-ñ-/ , which appears to lack parallels in the history of other languages (see Igartua 2015) and, furthermore, is crucially different from the evolution /-n-/ > /-ŋ-/ that has been proposed for Gascon. Since it is very likely that the weakening of intervocalic /-n-/ in Gascon and Basque are historically related phenomena, the fact that we find such different outcomes is perplexing. In Hualde (2017b), a different hypothesis is advanced that allows us to postulate the same change in Basque and Gascon by linking this development to postsonorant aspiration. Under this hypothesis, the aspiration in words like *ohore* ‘honor’, *ahate* ‘duck’, etc. would not be the direct result of the weakening of /-n-/ , but, rather, would have arisen by the phenomenon of postsonorant aspiration in stressed syllables discussed in section 2 above; e.g. /onore/ > /oŋore/ > /oŋhore/ > /oñore/ > /ohore/.

The contrast that we find, for instance, between *ohore* ‘honor’, with apparent replacement of the nasal with /h/, and *onhest* ‘honest’, with aspiration after the nasal, would be the result of *onhest* being a later borrowing, after the weakening of /-n-/ had run its course, but when postsonorant aspiration was active. In other cases, the alveolar nasal remains because originally it was a geminate, e.g. Lat *annōna* > *anhoā* ‘provisions’. This alternative hypothesis is illustrated in more detail in (8) with a couple of examples, **ardano* ‘wine’ (Zub *ardu* [ardú], Bizk *ardao*) and **sunī* ‘son-in-law’ (Zub *sūhi* [sýñi], Bizk *suin*) (Hualde 2017b).

¹⁴ Nevertheless, the Lapurdian form *lehoin* ‘lion’, found in Axular and other authors, is less straightforward under this hypothesis, as it would require a doubling in the segmentalization of the nasal feature, with leftward metathesis of the aspiration and restoration of the nasal occlusion at the end of the word; perhaps: */leoñe/ [lẽõñẽ] > [lẽñõñ] > [lehoĩn].

(8) Weakening of intervocalic /n/ in Basque: Hypothesis B

	*ardano	*suni
Allophonic nasalization of vowels	ardāno	sūni
n > ŋ / V__V	ardāŋo	sūŋi
[+2] stress assignment	ardáŋo	sūŋí
Postsonorant aspiration in stressed syllables		sūŋʰí
ŋ > Ø	ardá.o	sūʰí
Stress [+2] > [-2]		súʰí
Modern Zuberoan	[ardú]	[sýʰí]

The example *nehor* ‘anybody’ in (6c) requires more explanation. Indefinite pronouns derive from question words with a prefix *e-*. This prefix has become *i-* before *n-* in Central and Western dialects, e.g. *zer* ‘what’, *ezer* ‘anything’ (‘nothing’ in the context of negation); *nor* ‘who’, *inor* ‘anyone’; *non* ‘where’, *inon* ‘anywhere’; *noiz* ‘when’, *inoiz* ‘anytime’, *nola* ‘how’, *inola* ‘anyhow’. In Lapurdian, on the other hand, we find the forms *nehor* ‘anyone’, *nehon* ‘anywhere’, *nehoiz* ‘any time’, *nehola* ‘anyhow’, which appear to involve metathesis of the prefix, in addition to aspiration. In Zuberoan, *eñor* ~ *iñur*, *eñoiz* ~ *iñuiz*, *iñun*, *iñula* are found. The Lapurdian forms would have resulted from reinterpretation of the nasalization as an initial nasal consonant; e.g. **enor* > **ēñor* > **ēñhor* > *ēñor* > *nehor*.

Both the velarization of intervocalic /n/ and the subsequent loss of /ŋ/ are common to all Basque dialects, whereas postsonorant aspiration may have been limited to Eastern dialects. According to Chambon & Greub (2002) the velarization step took place before the 5th century in Gascon. For Basque, we may assume a similar chronology, which would place this sound change in the Common Basque period, before dialectal fragmentation (see the appendix).

6 Intervocalic /h/ at morpheme boundaries

In section 3, it was mentioned that /h/ may appear marking a morpheme boundary (cf. Michelena [1977] 2011, 173–174), as in *onheritzi* ‘love’ from *on* ‘good’ + *eritzi* ‘feeling, opinion’, which may have resulted from a glottal stop at this morphological juncture (Hualde 2006, Oñederra 2015). Intervocalic aspiration in compounds may have this origin as well, as in the examples in (9) from the book *Gero*.

(9) Intervocalic /h/ in compounds and derived forms in Axular’s *Gero* [1643]

zuhirindu ‘eat away (wood)’ < *zur* ‘wood’ + *irin* ‘flour’, *zuhaitz* ‘tree’ < *zur* ‘wood’ + *gaitz* ‘big’?

uharre ‘flood’, *uher* ‘muddy’, *uhin* ‘wave’, *uholde* ‘flood, deluge’ < *ur* ‘water’ + ?

deihadar ‘call, alarm’ < *dei* ‘call’ + *adar* ‘horn’

The first two sets of examples in (9) are compounds with *zur* 'wood' and *ur* 'water', respectively. The compound *zuhirindu* 'eat away wood' is a verbalization of a transparent compound of *zur* 'wood' and *irin* 'flour'.¹⁵ In other items the identification of the first element as *zur* 'wood' or *ur* 'water' seems unproblematic, but that of the second member of the compound is less obvious. We may assume an evolution, as in **zur?irin* > **zu?irin* > *zuhirin*,¹⁶ **dei?adar* > *deihadar*.

7 Other instances of intervocalic /h/

In addition to the types of items considered in the two sections below, there are many other words with intervocalic aspiration, neither in the context of an older /n/ or at a transparent morpheme boundary.

(10) Other instances in intervocalic /h/ in Pedro de Axular's *Gero* [1643]

- (a) Intervocalic, between identical vowels: *zahar* 'old', *ahaiko* 'relative', *ahaide* 'relative', *ahal* 'possible', *nahasi* 'mix, mess up', *ahapaldi* 'insulting word' (< *aho* 'mouth') *ahatara* 'mouthful' (< *aho*), *lehen* 'first', *xehe* 'fine', *behe* 'low', *mehe* 'thin', *leher* 'explode', *bihi* 'seed', *ohoin* 'thief', *ohol* 'board'.
- (b) Intervocalic, between different vowels: *behar* 'need', *bere-hala* 'immediately', *behaztopatu* 'prevent, trip' (< *behatz* 'toe'), *behatu* 'observe', *mehar* 'narrow', *beharri* 'ear', *xehatu* 'grind', *ehaitu* 'weave', *zehatu* 'hit', *ehortzi* 'bury', *eho* 'grind', *lehoin* 'lion', *ehun* 'hundred, cloth', *bihar* 'tomorrow', *iharduki* 'engage, fight', *gihar* 'muscle' (cf. *ginhar*, *giñar*), *bihotz* 'heart', *doha* 'goes', *zihoan* 'went', *bihur* 'twist', *ohartu* 'notice', *noharroin* 'beggar' (compound?), *bohatu* 'become rancid' (< Gasc *bohar* 'blow?'), *ohe* 'bed', *ohi* 'habit', *lohi* 'mud', *uhal* 'hinge'.
- (c) Between glide and vowel: *oihan* 'forest', *oihal* 'cloth', *oihu* 'cry', *begi-zeihar* 'cross-eyed', *leihari* 'pugnacious', *leiho* 'window', *aiher* 'hate', *saihets* 'side', *oihu* 'scream', *auhen* 'rue, lament'.

¹⁵ The apparent similarity between Bq *irin* 'flour' and Sp *harina* is a mirage (Michelena [1977] 2011, VI, 66).

¹⁶ Igartua (2006) proposes that in the rather numerous compounds with *zur* 'wood', *ur* 'water' and *lurr* 'land' the rhotic was lost before /h/ (i.e. *ur#hV* > *uhV*) and the solution in cases where the second member started with an etymological /h/ was generalized analogically to other compounds where the second member was vowel-initial. Lakarra (2015) assumes, instead, a change *-r* > *h*. The problem that I see for Lakarra's hypothesis is that this alternation only takes place at morpheme boundaries. Morpheme-internal and word-final rhotics do not show this evolution.

Some of these words may be compounds (e.g. *ohartu* ‘notice’ < ? + *hartu* ‘take’) and *bohatu* ‘to become rancid’ is most likely a borrowing (< Gasc *bohar* ‘blow’?). But that leaves a sizeable number of words for which aspiration must go back to a period before the sound changes identified in the previous sections. As mentioned above, the word *zahar* ‘old’ is identifiable in the name VMME SAHAR in an inscription from the time of the Roman Empire. We must thus conclude that in a relatively large number of words the /h/ is ancient.

8 Summary

Even a casual observation of Basque texts written in the 16th and 17th centuries shows that Basque dialects from North and South of the Pyrenees already differed radically in one aspect of their phonology: aspiration. In Southern texts, there is no evidence of any aspiration. In Northern texts, on the other hand, the letter <h>, indicating aspiration, is very frequent and there is also a series of aspirated stops. With very few exceptions, there is no aspiration of any kind beyond the second syllable of the word and there can never be more than one aspiration per word (except in some transparent compounds).

Although we do not have any texts entirely written in Basque before the 16th century, the fragmentary evidence that we do possess from Southern areas shows that, at an earlier time, aspiration may have been common to all Basque dialects. Furthermore, the place names contained in Southern 11th century documents do not show the restrictions in the distribution of <h> that are found in the 16th century. On the other hand, they do not provide evidence for aspirated stops.

After examining the evidence, we have concluded that, as far back into the past as we can confidently go, a phoneme /h/ was already found in all the phonological contexts where it appears in historical Basque: word initially, intervocalically and after nonlabial sonorant consonants. This, however, does not imply that aspiration is etymological in all words. The treatment of Romance loanwords clearly demonstrates that there has been a tendency to generalize aspiration in certain positions. Aspiration may have also arisen in compounds from an earlier glottal stop.

Two historical changes in accentuation contributed to producing the distribution of aspiration that we find in Northern Basque dialects. First, the stress or accent was fixed on the second syllable, with some items being exceptionally accented on the first syllable. This is a change that has taken place at different historical times in a number of Basque dialects (Hualde 2003, 2012). At this point, voiceless stops became

allophonically aspirated in accented syllables and unaspirated in other syllables. The same rule affected the distribution of /h/: it was preserved only in the onset of an accented syllable, and words that did not have any aspiration tended to acquire it before the accented vowel in the contexts where it was licensed, as we can observe in loanwords, e.g. Lat *īra* > Bq */íra/ > *hira* ‘ire’; Rom *solatz* > Bq */solás/ > *solhas* ‘conversation’; Rom *(h)onest* > Bq */onést/ > *onhest* ‘honest’; Lat *(h)onōrem* > Bq */onóre/ > */onjóre/ > */onjhóre/ > *ohore* ‘honor’; Rom *taula* > Bq */táwla/ > *thaula*.¹⁷ As Michelena argues, a subsequent reinterpretation of the directionality of the accentual rule would have caused the phonologization of aspirated stops, by making their distribution not totally predictable from the position of the accent. Paradigm uniformity seems to have helped to preserve aspiration in syllables that were no longer stressed after this change, as in e.g. *ákher* ‘he-goat’, cf. inflected *akhérra* ‘the he-goat’, leading to phonologization of this feature.

9 Appendix: on the relationship between Aquitanian and Basque

The distribution of the grapheme <h> in the Aquitanian inscriptions has been considered an essential piece of information regarding the history of aspiration in Basque. It is thus important to clarify the relationship between Basque and Aquitanian.

The term ‘Aquitanian’ is commonly employed to refer to the language of non-Indo-European anthroponyms and theonyms that have been found in Latin inscriptions mostly in an area north of the Pyrenees to the East of the present-day Basque-speaking region, where the local language is Gascon. This area falls within the Roman province of Aquitania. At the very beginning of his book on the Gallic Wars, Julius Caesar tells us that the Aquitani spoke a language that was different from that of the Gauls, and Strabo, in his *Geography*, adds that they were more similar in their language and other respects to the Iberians than to the Gauls (see Gorrochategui 1995, 38–39). Quite a few of these names of people and gods contain elements that appear to be interpretable through Basque. In an early study of these inscriptions, Achilles Luchaire (1876, 6–7, cited in Gorrochategui 1984, 240) already

¹⁷ A well-known puzzle in Basque historical phonology is the alternation between *hi* ‘thou’, *hire* ‘thy, thine’, with aspiration, and *eure* ‘thy, thine, emphatic’ without aspiration. For the emphatic form, Lakarra (2009b), following Michelena ([1977] 2011, VI, 173, fn 12), proposes **hi-haur-e*, where *haur* is the demonstrative ‘this’, which underwent grammaticalization as an article. By dissimilation, **híhaure* > **íhaure*, and by loss of the aspiration after the stress-accent, **íhaure* > *eure* (and in a parallel fashion, **níhaure* > *neure* ‘my, mine’). A possible problem for this account is that the genitive of *haur* ‘this’ is actually *honen* ‘of this’, not **haure*.

noted the resemblance of the Aquitanian forms ANDERE, NESCATO, names of women, and CISON, CIS(S)ON- in several names of men, respectively with the Basque words *andere* ‘woman’, *neskato* ‘girl’ and *gizon* ‘man’, and concluded that this similarity could not possibly be due to chance.

More recently, similar names have also appeared in smaller numbers in a relatively large area to the West, and South of the Pyrenees, such as the already mentioned VMME SAHAR in Navarre (which can be equated with Bq *ume zahar* ‘old child’) and SESENCO (interpretable as Bq *zezenko* ‘little bull’), near the Castilian town of Soria (see Gorrochategui 2009, 2011).

A question that we need to address is whether (all of) Aquitanian is a direct ancestor of Basque. Campbell provides the examples in the first four columns of (11) below to make the point that the similarity between Aquitanian and Basque words is comparable to that between English and Gothic. Since we know that Gothic is not a direct ancestor of English, we may surmise that a similar relationship may hold between Aquitanian and Basque. That is, Aquitanian may be a close relative of Basque without being its direct ancestor.

There are two observations to be made regarding Campbell’s comparison, neither of which strengthens the view that Aquitanian (as a whole) is a direct ancestor of modern Basque. First of all, when we add Old English to the comparison, as we have done in (11), it is even more clear that distinguishing between a direct ancestor and a close relative may not be easy without additional information. Secondly, whereas in the case of Gothic and Old English, we can be certain about the meaning of the words and their status as cognates or not, for Aquitanian we do not actually know what the meaning of the elements that we are comparing with Basque is. These are names or parts of names that look like they may be cognates with Basque words, since they make sense as such within a certain onomastic tradition, but this is only a guess. We do not actually know that Aquitanian ATTA meant ‘father’ or BELEX meant ‘black’, etc. (in fact, Gorrochategui 1984, 270–271 does not relate SIRICCO to Bq *zuri*, for instance).

(11) (adapted from Campbell 2017, adding Old English)

<i>Aquit.</i>	<i>Basque</i>	<i>Gothic</i>	<i>English</i>	<i>Old Eng</i>
atta-	aita	fadar	father	fader
belex	beltz	swarts	black	sweart
bon-	on	gops	good	god
sembe-	seme	sunus	son	sunu
hanna	anaia	broþar	brother	broþor
seni-	sehi/seiñ	magus	boy	cniht
ocxon	otso	wulfs	wolf	wulf
siri(cco)	zuri	hweits	white	hwite-

As mentioned, the language identified as Aquitanian or Basque-Aquitanian has left vestiges in a wide area, on both sides of the Pyrenees. This area is much larger than that occupied by the present-day Basque-speaking territory or even the whole territory of the seven historically Basque provinces. It stands to reason that this language, spoken in such a wide area of Gallia and Hispania in Roman times, underwent dialectalization. Now, it is clear to anyone with linguistic training who examines the evidence that present-day Basque dialectalization is more recent than that. All present-day Basque dialects are very much alike and this similarity was even greater in the 15th century, at the time of our first texts in Basque. Michelena (1981) concludes that a common ancestor of all Basque dialects, the unified stage prior to current dialectalization, was spoken at some point in the Middle Ages, perhaps in the 5th or 6th century. More recent scholarship has accepted this view, some authors speculating that this language, Old Common Basque, may have been spoken in an area of northern Navarre (Zuazo 2010, Lakarra 2011). If this is so, it follows that all Basque-Aquitanian inscriptions cannot possibly correspond to the direct ancestor of the Basque language. If Old Common Basque developed, for instance, from a language variety spoken around Toulouse, in Southwestern France, in Roman times, it cannot also derive from the Basque-like ('Vasconic') language spoken around Soria at that time, and vice versa. Thus, for instance, directly related to the topic of this paper, the Aquitanian theonym *AHERBELSTE* may in fact be correctly interpretable as *Bq ak(h)er beltz* 'black he-goat', as some scholars have proposed, without implying that there was a change /h/ > /k^h/ in the direct ancestor of Basque.

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Author contact details

José Ignacio Hualde
 University of Illinois at Urbana-Champaign
 Department of Linguistics
 4080 FLB
 Urbana, IL 61801
 USA
jihualde@illinois.edu

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